

**Notice of Allowability**

Application No.

10/810,031

Examiner

Ron E. Pompey

Applicant(s)

DARWISH ET AL

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5-9-05.
2. ☒ The allowed claim(s) is/are 1-7.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**MICHAEL LEBENTRITT**  
**SUPERVISORY PATENT EXAMINER**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 1, line 23, after "termination trenches to said" replace "first" with --second--.

Claim 1, line 26, after "portion of said" replace "second" with --first--.

Claim 1, line 29, after "portion of said" replace "second" with --first--.

Cancel claims 8-12.

### ***Allowable Subject Matter***

2. Claims 1-7 are allowed.

3. The following is an examiner's statement of reasons for allowance: the prior art of record, either singly or in combination, fails to disclose the limitations of:

first layer of a first conductivity type overlying a second layer of a second conductivity type opposite to said first conductivity type, said die further comprising:  
an active area comprising an MIS device, said MIS device comprising:

an active trench comprising a conductive gate material and extending downward from a surface of said first layer, a bottom of said active trench being located in said first layer;

a source region of said second conductivity type in said first layer, said source region being located adjacent said surface of said die and a sidewall of said active trench; and

a drain-drift region of said second conductivity type extending downward from said bottom of said active trench to said first layer; and  
a termination region comprising:

at least a first and a second termination trench, each of said termination trenches extending downward from said surface of said die, each of said termination trenches comprising a conductive material and having a bottom in said first layer, said conductive material in each of said termination trenches being insulated from said first layer by a dielectric layer lining the sidewalls and bottom of said termination trench;

a region of said second conductivity type extending from a bottom of each of said termination trenches to said first layer;

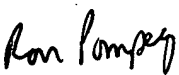
at least a first and a second metal layer above said surface of said die, said first metal layer being electrically connected to said conductive material in said first termination trench and to a portion of said first layer in a mesa between said first and second trenches, said second metal layer being electrically connected to said conductive material in said second termination trench and to a portion of said first layer in a region on a side of said second termination trench opposite from said mesa, wherein said conductive materials in said termination trenches are electrically isolated from each other and from said source region and said first layer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E. Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on compressed.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ron Pompey  
AU: 2812  
September 19, 2005

  
**MICHAEL LEBENTRITT**  
SUPERVISORY PATENT EXAMINER